YUSHCHENKO, Yekaterina Logvinovna; MALINOVSKIY, Boris Nikolayevich; POLISHCHUK, Galina Andreyevna; YADRENKO, Engelina Konstantinovna; NIKITIN, Andrey Ivanovich;

[The "Dnipro" control computer with a wide range of applications and its programming programme programmer's manual] Upravliaiushchaia mashina shirokogo naznacheniia "Dnipro" i programmiruiushchaia programma k nei; spravochnik programmista. Kiev, Izd-vo "Naukova dumka," 1964. 279 p. (MIRA 17:8)

L ... EWT(d)/EEC-2/... ... Pg-4/Pq-Pk-4 IJP(c) AFMD(p)/ASD(a)-5/
SSD/AFETR ... RAEM(i) AEM(c) ... BB GG/MLK/JXT(RF)
ACCESSION NR AM4046724 BOOK EXPLOITATION S/

[illegible], Yekaterina Logvinovna; [illegible]enko, Tamara Alekseyevna

Programming program with input address language for the computer Ural-1; programmer's handbook (Programmiruyushchaya programma s vkhodny'm adresny'm yazy'kom dlya mashiny' Ural-1; spravochnik programmista), Kiev, [illegible], 19,000 copies printed.

[illegible] computer programming, computer Ural-1, computer program PP-AU

PURPOSE AND COVERAGE: The algorithmic address language, developed in the Institute of Cybernetics of the Ukrainian Academy of Sciences, is suitable to describe arithmetic and complex information-logic problems. The selection of the style of input address language determines the complexity of the programming program (PP). This manual describes the programming program for the Soviet computer Ural-1 (PP-AU). As an input language for this programming program, a style of address language is used which requires the use of only the operational memory of the computer. Examples of program composition using PP-AU are given. The book is intended for engineers and mathematicians who want to learn to use a computer without a programmer and can be useful to

... 1/2

students in a wide variety of specialties who are taking the course on computers and programming.

TABLE OF CONTENTS [abridged]:

SUB CODE: LT SUBMITTED: 07Feb64 NR REF SOV: 007

OTHER: 000

Card 2/2

KULINKOVICH, A.Ye.; YUSHCHENKO, Ye.L.

Basic algorithmic language. Kibernetika no.2:3-8 Mr-Ap '65.
(MIRA 18:5)

YUSHCHENKO, Ye.L. [IUshchenko, K.L.]

Automation of the process of composing programming programs. Dop. AN URSR no.6:715-717 '65. (MIRA 18:7)

1. Institut kibernetiki AN UkrSSR.

ACC NR: AM6016004 Monograph UR/

Babenko, Lyudmila Petrovna; Dovgopolaya, Lyudmila Ivanova; Korniyenko, Galina Mikhaylovna; YUshchenko, YEkaterina Logvinovna

Automatic programming system for the M-20 computer; translator from the address language. A manual (Sistema avtomaticheskogo programmirovaniya dlya mashiny M-20; translyator s adresnogo yazyka. Spravochnoye rukovodstvo) Kiev, Naukova dumka, 1965. 153 p. illus., biblio. (At head of title: Akademiya nauk Ukrainskoy SSR) 7750 copies printed.

TOPIC TAGS: computer language, computer programming, algorithmic language, machine language

PURPOSE AND COVERAGE: This book is intended for persons who use computers in their work or are engaged in the designing of automatic programming systems. The algorithmic address language used for describing computational, and information and logical processes, as well as the respective programming program developed at the Institute of Cybernetics, AN UkrSSR for the Soviet M-20 computer, are described in detail. Methods of programming a program and examples of programming are reviewed. The automated programming system developed by the authors makes it possible to increase the calculation rate on the M-20 computer by a factor of 10 to 15.

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ACC NR: AM6016004

TABLE OF CONTENTS:

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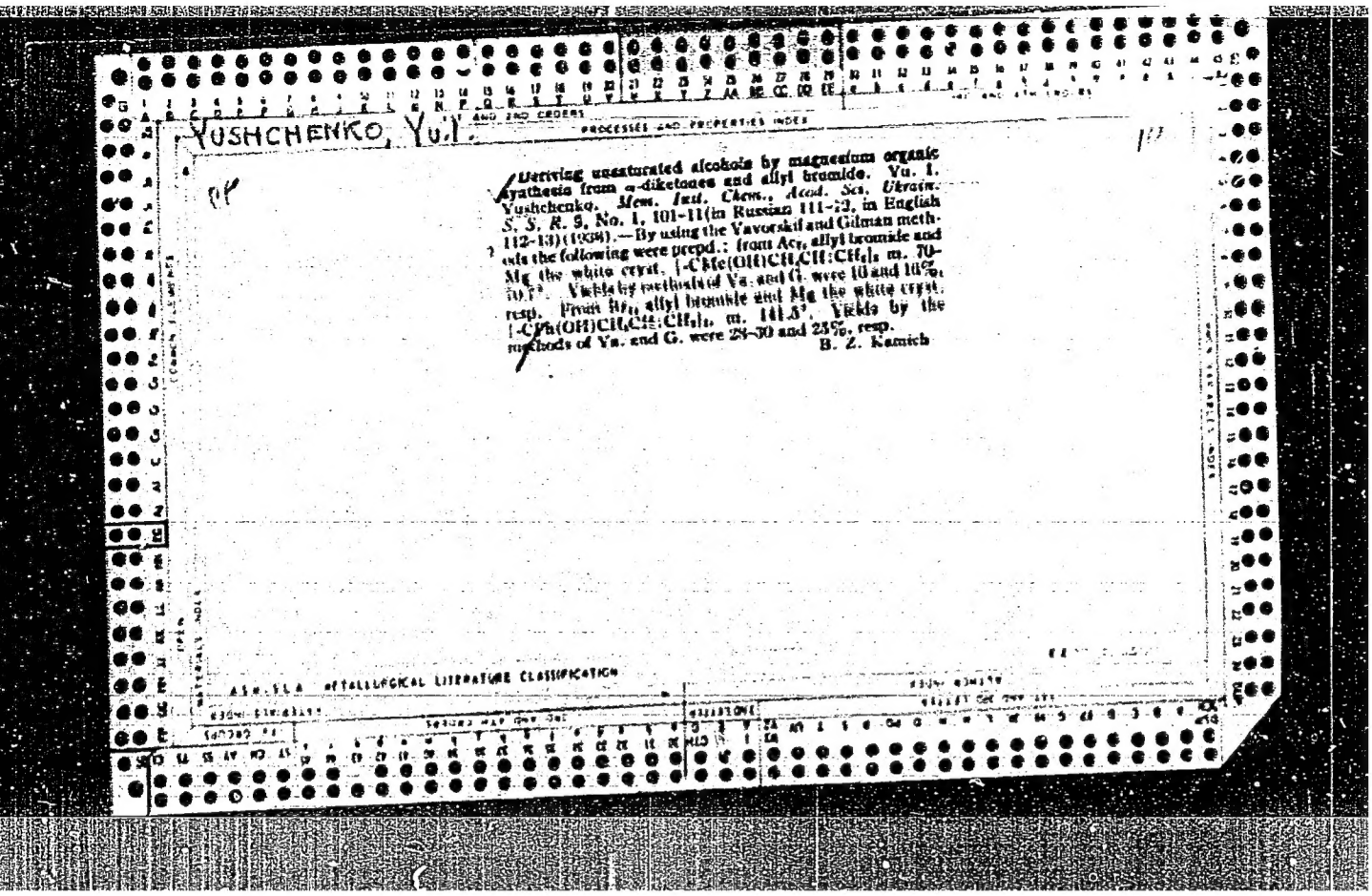
ACC NR: AM6016004

1. Basic concepts and means of an address language -- 123
2. Rules for coding information in PP-M internal language -- 139
3. Description of the letter-perforator -- 140
4. Mathematical description of the M-20 computer -- 142

SUB CODE: 09/ SUBM DATE: 19Nov65/ ORIG REF: 007

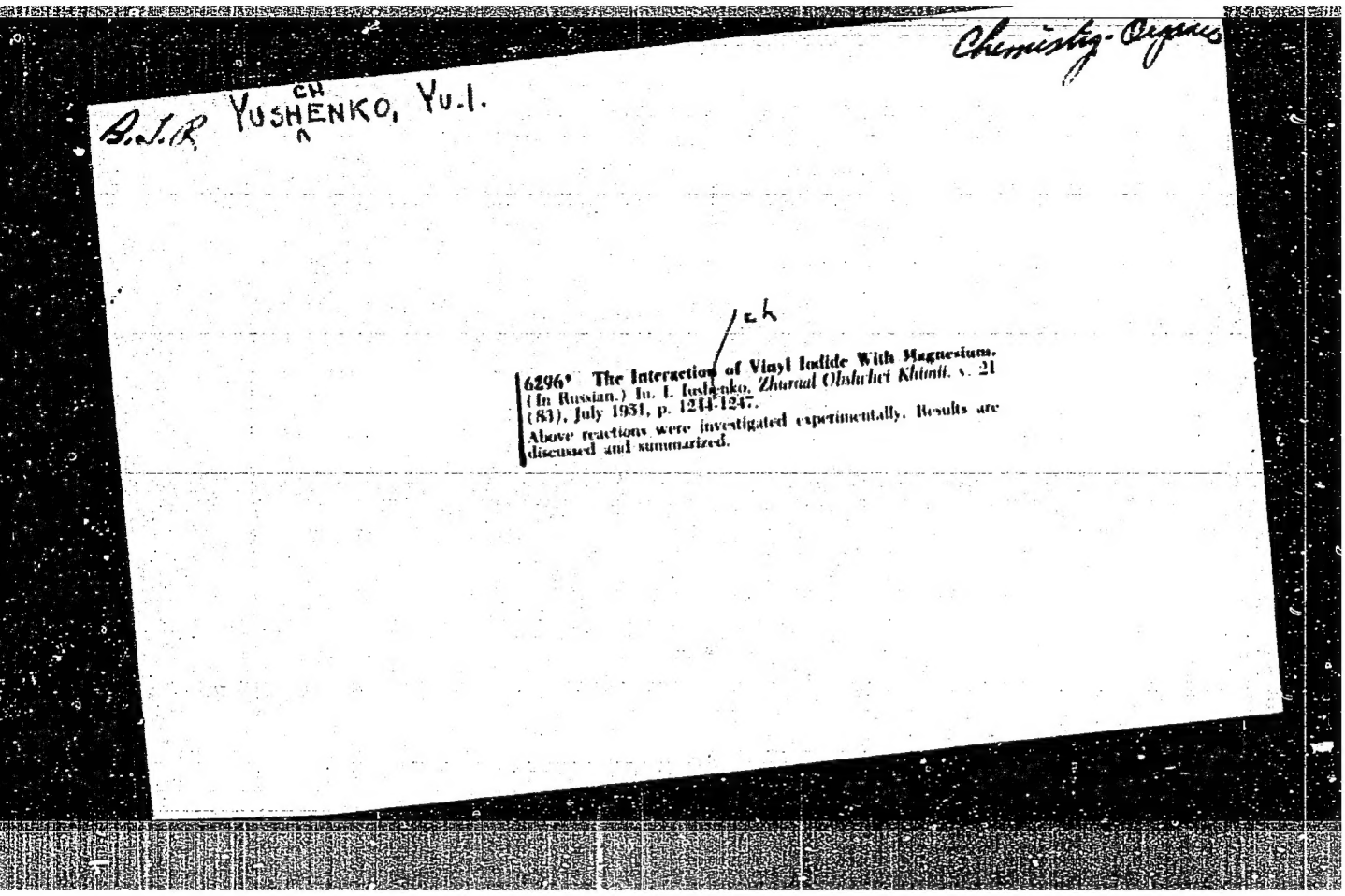
Card 3/3



YUSHCHENKO, Yu.I.

Deriving unsaturated alcohols by magnesium organic synthesis from α-diketones and allyl bromide. Yu. I. Yushchenko. *Mem. Inst. Chem., Acad. Sci. Ukrain. S.S.R.* 9, No. 1, 101-11(in Russian 111-22, in English 112-13)(1939).—By using the Yavorskii and Gilman methods the following were prepd.: from Ac, allyl bromide and Mg the white cryst. 1-CMe(OH)CH$_2$CH:CH$_2$, m. 70-70.5°. Yields by methods of Yu. and G. were 10 and 18%, resp. From Bz, allyl bromide and Mg the white cryst. 1-CPh(OH)CH$_2$CH:CH$_2$, m. 141.5°. Yields by the methods of Yu. and G. were 28-30 and 23%, resp.

B. Z. Kamich

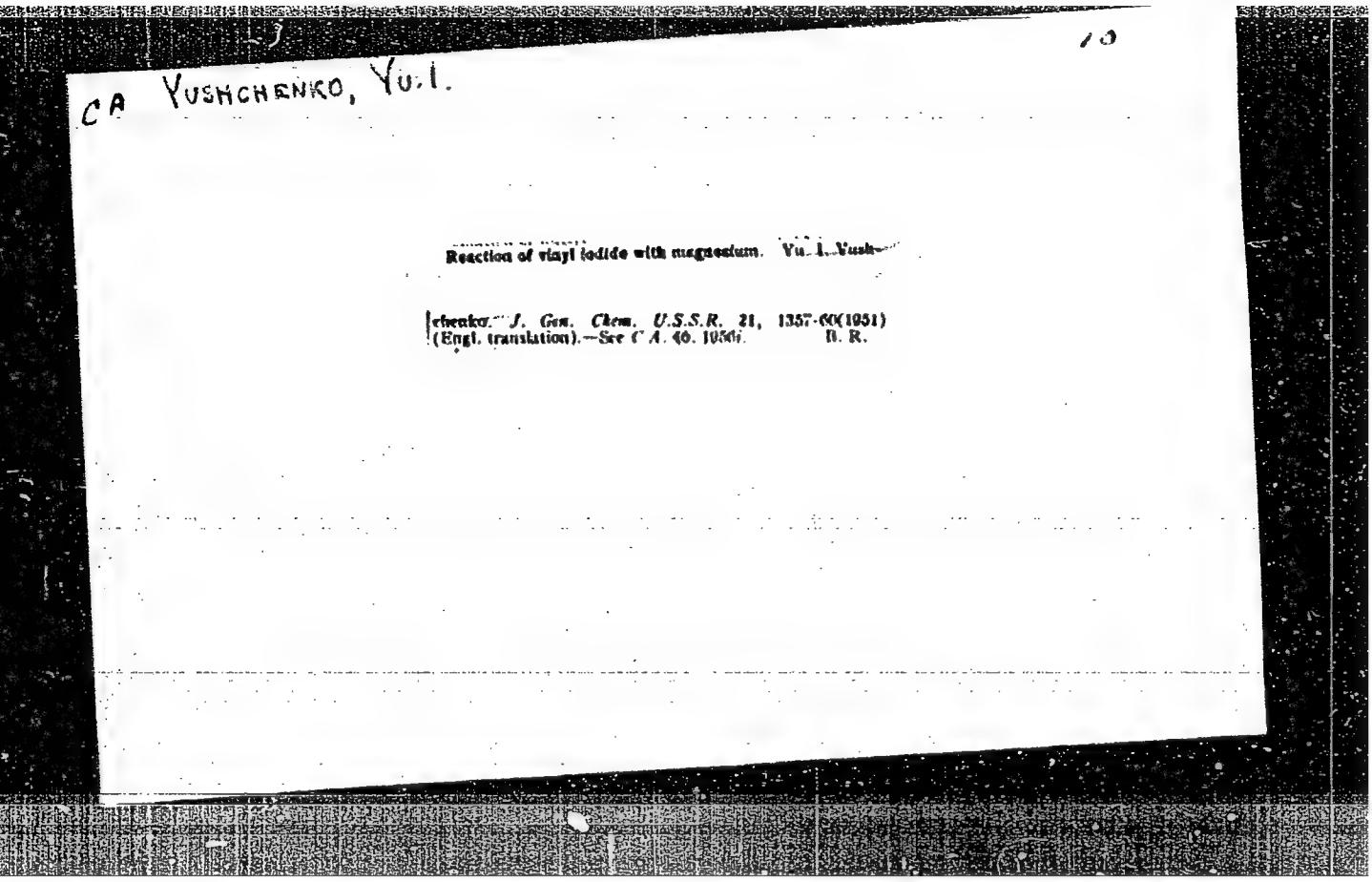


Chemistry - Organic

U.S.S.R. YUSHENKO, Yu.I.

6296. The Interaction of Vinyl Iodide With Magnesium. (In Russian.) Iu. I. Iushenko. *Zhurnal Obshchei Khimii*. v. 21 (83), July 1951, p. 1244-1247.

Above reactions were investigated experimentally. Results are discussed and summarized.



CA YUSHCHENKO, Yu.I.

Reaction of vinyl iodide with magnesium. Yu. I. Yush-
chenko. *J. Gen. Chem. U.S.S.R.* 21, 1357-60(1951)
(Engl. translation).—See *C. A.* 46, 1056i. B. R.

YUSHCHENKOVA, N. I.

"Theory of the Steam Jet Vacuum Pump." Cand Phys-Math Sci, Mathematics Inst Imeni V. A. Stklov, Acad Sci USSR, 11 Feb 54. Dissertation (Vechernyaya Moskva Moscow, 2 Feb 54)

SO: SUM 156, 19 Aug 1954

Yushchenkova, N. I.

USSR/Physics - Vacuum pump

Card 1/1 Pub. 153 - 19/24

Author : Skobelkin, V. I., and Yushchenkova, N. I.

Title : Theory of the vapor-jet vacuum pump

Periodical : Zhur. tekh. fiz., 24, No 10, 1879-1891, Oct 1954

Abstract : The authors investigate the interaction between the gas to be pumped out and the supersonic vapor jet. They clarify the mechanism governing the process and thus are enabled to calculate the speed of pumping out of the gas and to determine the influence of the various parameters upon this speed. They note that their results differ from those obtained by the USSR authors Lifshits and Rozentsveyg (ibid., No 8, 1952).

Institution : -

Submitted : April 3, 1953

Category : USSR/Atomic and Molecular Physics - Gases D-7

Abs Jour : Ref Zhur - Fizika, No 1, 1957 No 932

Author : Skobelkin, V.I., Yushchenkova, N.I.
Title : Corrections to Article "Theory of Vapor-Jet Vacuum Pump."

Orig Pub : Zh. tekhn. fiziki, 1955, 25, No 2, 66

Abstract : Refers to Ref. Zhur. Fiz. 1955, 8952

Card : 1/1

Yushchenkova, N.I.

PHASE I BOOK EXPLOITATION SOV/3407

Akademiya nauk SSSR. Energeticheskiy institut im. G.M. Krzhizhanovskogo

Problemy energetiki; sbornik posvyashchayetsya akademiku G.M. Krzhizhanovskomu (Problems of Power Engineering; Collection of Articles Dedicated to Academician G.M. Krzhizhanovskiy) Moscow, 1959. 552 p. Errata slip inserted. 2,300 copies printed.

Eds. of Publishing House: N.D. Antrushin, P.V. Sukhov, P.I. Zubkov, and B.M. Moyzhes; Tech. Ed.: T.A. Prusakova; Editorial Board: A.V. Vinter, Academician (Deceased), V.I. Popkov (Resp. Ed.) Corresponding Member, Academy of Sciences USSR, V.I. Veyts, A.S. Predvoditelev, M.A. Styrikovich, N.V. Chernukhov, N.B. Bogdanova, Candidate of Technical Sciences, B.K. Krylov, Candidate of Technical Sciences, M.M. Lebedev, Candidate of Technical Sciences, and I.N. Sandukov.

PURPOSE: This collection of articles is intended as a tribute to the memory of Academician G.M. Krzhizhanovskiy.

COVERAGE: The collection contains sixty articles by former students and coworkers of the deceased Academician. The articles deal with problems of a wide range of subjects in the field of power engineering: problems of the regional development of electrical and thermal power engineering, power engineering technology, and the physics of combustion. No personalities are mentioned. References are given after most articles.

2/8

YUSHCHENKOVA, N.I. and KOSTERIN, S. I.

"Structure and Interaction of Supersonic Vapour Streams in Vacuum."

Report submitted for the Conference on Heat and Mass Transfer, Minsk, BSSR, June 1961.

KOSTERIN, S.I.; YUSHCHENKOVA, N.I.; BELOVA, N.T.; KAMAYEV, B.D.

Effect of rarefaction of a supersonic flow on the readings of impact-pressure probes. Inzh.-fiz.zhur. 5 no.12:16-22 D '62. (MIRA 16:2)

1. Institut mekhaniki AN SSSR, Moskva.
(Aerodynamics, Supersonic)

YUSHCHENKOVA, N. I.; KOSTERIN, S. I.

"On the effect of kinetics of elementary reactions on ionization in stationary and non-stationary supersonic expansion and compression of gases."

report presented at the 10th Intl Combustion Symp, Cambridge, UK, 17-21 Aug 64.

Inst of Chemical Physics, AS USSR, Moscow.

KOSTERIN, S.I.; YUSHCHENKOVA, N.I. (Moscow)

"Effect of kinetics on ionization at stationary and non-stationary supersonic extension and at instantaneous compression of a gas."

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

YUSHCHENKOVA, N. I.

"On the effect of kinetics of elementary reactions in ionization in stationary and non-stationary supersonic expansion and compression of gases."

report submitted to 10th Intl Symp on Combustion, Cambridge, UK, 17-21 Aug 64.

KOSTERIN, S. I.*; YUSHCHENKOVA, N. I.

"The influence of wall temperature on a supersonic rarefied flow around a sharp cone."

report submitted for 2nd All-Union Conf on Heat & Transfer, Minsk, 4-12 May 1964.

Mechanics Inst, AS USSR.

*Deceased

AUTHOR: Kouterin, S. I. (Deceased); Yushchenkova, N. I.

[illegible] Institute of Mechanics AN SSSR (Institut mekhaniki AN SSSR)

[illegible]

[illegible] potokami zhidkostey i gazov (Heat and mass transfer [illegible] heat and mass transfer in liquid and gas flows). Minsk, Nauka i tekhnika, 1965. [illegible]

TOPIC TAGS: [illegible], hypersonic flow, rarefied gas, shock wave, boundary layer, supersonic nozzle [illegible] gas flow, gas dynamics, [illegible]

[illegible] experimental investigation [illegible] hypersonic rare-

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L 15631-66

ACC NR

with boundary layer at low Re numbers. The results of the investigation carried

[illegible] parameter $M\sqrt{Re_x}$ = [illegible]

[illegible] angles were used to generate homogeneous hypersonic

[illegible] essentially by the surface pres-

SUB CODE: 20/ SUBM DATE: 09NOV65 [illegible]

4201

Card 2/2

ACC NR: AP6036755 SOURCE CODE: UR/0020/66/171/001/0065/0068

AUTHOR: Zel'dovich, Ya. B. (Academician); Kormer, S. B.; Krishkevich, G. V.; Yushchko, K. B.

ORG: none

TITLE: The problem of the smoothness of the detonation front in a liquid explosive

SOURCE: AN SSSR. Doklady, v. 171, no. 1, 1966, 65-68

TOPIC TAGS: shock wave, detonation front, detonation front profile, detonation front reflectivity, detonation front reflecting loss, liquid explosive

ABSTRACT: An analytical investigation of the light reflectivity of the detonation front in a liquid explosive (a mixture of nitric acid and dichloroethane) is presented, to explain the deviation of the experimental values of the reflection factor from the values calculated on the basis of the change of the refractive index in the wave front. The analysis uses earlier experimental data and yields a semi-quantitative description of the phenomenon as based on the wave theory of light reflection. The difference between the observed and calculated values of the reflection index, the analysis shows, can be ascribed to a certain degree of roughness on the detonation front comparable to the wavelength of the incident light. The degrees of roughness and the corresponding losses of reflected light intensities within the full range from purely specular to fully diffuse reflection were

Card 1/2 UDC: 532.5+535.8

ACC NR: AP6036755 (A)

established. Conversely, the measured intensities of reflected light and dependence of the diffusely reflected portion on the angle of incidence characterize the degree and the average period of the roughness of the detonation front. The character of the roughness proved to be stationary under given conditions of detonation, while perturbations of higher orders leveled off very quickly. The deviation of the detonation front from a perfect specular surface is considered proven. The actual origin of the deviation, however, remains to be determined. At present, two explanations are considered possible: either it is a phenomenon resembling that observed earlier with gaseous detonation and only modified for the higher density of liquids; or it is initiated by inhomogeneities in the zone of chemical reaction, although no feedback of these fluctuations on the process of reaction has been observed. The use of the laser beam as a light source is being considered for a more detailed investigation of the profile of the detonation surface. Orig. art. has: 3 figures and 1 table.

SUB CODE: 20/ SUBM DATE: 18Jul66/ ORIG REF: 004/ ATD PRESS: 5107

Card 2/2

YUSHENAYTE, Ya.[Jusenaite, J.]; MEDONIS, A.R.; KAPLANAS, O., red.; VYSHOMIRSKIS, Ch.[Vysomirskis, C.], tekhn. red.

[The resort of Druskininkai]Kurort Druskininkai. 2. ispr. i dop. izd. Vilnius, Gos.izd-vo polit. i nauchn. lit-ry, 1962. 92 p. (MIRA 16:5)
(DRUSKININKAI--DESCRIPTION)

YUSHENAYTE, Ya. P., Cand Med Sci -- (diss) "Treatment of hypertensive patients at the Druskininkay Health Resort." Vil'nyus, 1958. 23 pp (Acad Sci Lithuanian SSR, Inst of Experimental Medicine), 250 copies (KL, 35-58, 110)

YUSHKEVICH, P.M., kand. tekhn. nauk

Combined method of quenching high-speed steel. Proizv. trub no.11: 109-112 '63. (MIRA 17:11)

ACCESSION NR: AM5033013

AUTHOR: Rusakevich, P. M.; Andreyeva, [illegible] M.

TITLE: [illegible] in the fine crystalline structure and phase [illegible] austenitic steel [illegible] with hot and cold rolling

SOURCE: [illegible] M., Metallurgiya, 96[illegible]

83-89

TOPIC TAGS: crystal structure, austenitic steel, cold rolling, hot rolling, phase composition, austenitic steel Kh18N10T

ABSTRACT: [illegible] is varied to varying degrees by cold and hot rolling at reductions of [illegible] sigma, is increased from [illegible] to 101 kg/mm^2 by hot rolling (1100-1200C) and from 60 to 121 kg/mm^2 by cold rolling. To explain the reasons for the varying degrees of hardening, an X-ray study was made of the fine structure, deformation aging, hardness, and amount of martensite deformation. During stages of deformation up to 50%, the blocks were larger after hot rolling

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ACCESSION NR: AR5000601

than after cold rolling. With hot rolling to reductions more than 50%, the type II stresses are smaller than with cold rolling but the blocks are more broken up. Deformation aging was evaluated by a decrease in the gamma lattice period and was identical for both hot and cold rolling. With increase in the temperature of hot rolling the amount of martensite deformation formed decreases and becomes equal to zero at 200° (point M_d). Thus the authors explain the fact that steel hardens more after cold rolling by the blocks breaking up, the increase in the density of the dislocations measured by X-ray, and the formation of martensite deformation. 3 figures, 11 literature titles. Yu. Andreev.

SUB CODE: MM ENCL: 00

Card 2/2

YUSHKEVICH, P.M., kand. tekhn. nauk; ANDREYEVA, Ye.M., inzh.

Change in the fine crystal structure and phase composition of Kh18N10T austenitic steel during hot and cold rolling. Proizv. trub no.12:83-89 '64. (MIRA 17:11)

YUSHIN, A., inzhener.

Laying rubble and bricks under cold weather conditions. Stroitel' no.2:21-22 F '57. (MLRA 10:3)
(Bricklaying--Cold weather conditions)

YUSHIN, A. A.

Author: Yushin, A. A.

Title: Plasticity. (Plastichnost'.)

City: Moscow

Publisher: State Printing House of Technical and Theoretical Literature

Date: 1948

Available: Library of Congress

Source: Monthly List of Russian Accessions, Vol. 4, No. 1, p. 19

YUSHIN, A.A.

Causes of increased consumption of crankcase oil by the KDM-46 engines. Nauch.trudy Inst.mash.i sel'khoz.mekh.AN UkSSR 6: 115-124 '58. (MIRA 13:4)
(Tractors--Engines)

YUSHIN, A.A., kand.tekhn.nauk

Study of the effect of special design features of the MTZ-52 tractor on its dynamic and operational indices. Trakt. i sel'khozmash. 32 no.7: 4-6 Jl '62. (MIRA 15:7)

1. Ukrainskiy nauchno-issledovatel'skiy institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva.
(Tractors)

MULLER, R.A.; YUSHIN, A.I.

"Temporary technical specifications on designing and building in areas being undermined." Reviewed by R.A.Muller, A.I.Iushin. Shakht.stroi. no.10:35-36 '58. (MIRA 11:11)
(Building) (Mining engineering)

YUSHIN, A.I., inzh.

Foreign practices in planning and building on ground located over mines. Shakht. stroi. 4 no. 5:25-28 My '60. (MIRA 14:4)
(Foundations) (Soil mechanization)

MULLER, R.A., kand.tekhn.nauk; YUSHIN, A.I., inzh.; MELAMUT, L.Sh., inzh.

Temporary technical specifications for planning and constructing buildings and structures on ground located over mines. Shakht. stroi. 4 no. 5:29-30 My '60. (MIRA 14:4)
(Foundations) (Soil mechanics)

YUSHIN, A.I.; VODOP'YANOV, V.N.; GITEL'MAN, M.V.; GRODZINSKIY, L.I.

Designing a group of industrial buildings taking into account the deformation of foundations caused by underground workings. Prom. stroi. 38 no. 12:35-39 '60. (MIRA 13:12)

1. TSentrogiproshakht (for Yushin). 2. Khar'kovskoye otdeleniye Promstroyproyekt (for Godzinskiy).
(Foundations) (Industrial buildings)

YUSHIN, A.I.

Socialist competition in honor of the 22d Congress of the CPSU.
Khim. prom. no.10:78 O '61. (MIRA 15:2)
(Chemical industries)

YUSHIN, A.I. (Moskva)

Design of residential and industrial buildings for uneven settling of the foundation. Stroi. mekh. i raschet. soor 4 no.1:40-44 '62. (MIRA 16:12)

KOLBENKOV, S.P.; MEDYANTSEV, A.N.; IOFIS, M.A.; KOROTKOV, M.V.; MULLER, R.A.; YUSHIN, A.I.; MELAMUT, L.Sh.; KARGIN, G.P.; GERTNER, P.F.; ZARETSKIY, K.S.; CHECHKOV, L.V., red.izd-va; MAKSIMOVA, V.V., tekhn. red.

[Designing, constructing, and protecting buildings and structures on foundations undercut by mining] Proektirovanie, stroitel'stvo i okhrana zdanii i sooruzhenii na podrabatyvaemykh territoriiakh. Moskva, Gosgortekhizdat, 1963. 451 p. (MIRA 16:8)
(Earth movements and building)

YUSHIN,A.I.; KOCHAROVA, I.A.

New pavilion entitled "Construction of Large-Panel Buildings under Complex Conditions." Osn., fund. i mekh. grun. 8 no.1:34-36 '66.

(MIRA 19:1)

TIMOFEYEV, S.V.; YUSHIN, A.I.; SHVEDOVA, S.N.

Study of the joint action of grillage and wall panels standing on the full-scale reinforced concrete units. Osn., fund. i mekh. grun. 7 no.5:18-21 '65. (MIRA 18:10)

STARITSYN, A.P., inzh., red.; MULLER, R.A., kand. tekhn. nauk, red.; YUSHIN, A.I., red.

[Instructions for designing buildings and structures on areas undercut by mining] Ukazaniia po proektirovaniiu zdanii i sooruzhenii na podrabatyvaemykh territoriiakh (SN 289-64). Izd. ofitsial'noe. Moskva, Stroiizdat, 1965. 81 p. (MIRA 18:6)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva. 2. Gosstroy SSSR (for Staritsyn). 3. Vsesoyuznyy nauchno-issledovatel'skiy institut gornoy geomekhaniki i marksheyderskogo dela (for Muller). 4. Nauchno-issledovatel'skiy institut osnovaniy i podzemnykh sooruzheniy Gosstroya SSSR (for Yushin).

S/0076/64/038/004/0957/0962

ACCESSION NR: AP4034582

AUTHOR: Devyaty*kh, G. G.; Yushin, A. S.

TITLE: Equilibrium constants of the thermal dissociation reaction of simple volatile hydrides of the Group III-VI element hydrides.

SOURCE: Zhurnal fizicheskoy khimii, v. 38, no. 4, 1964, 957-962

TOPIC TAGS: Group III hydride, Group IV hydride, Group V hydride, Group VI hydride, B sub 2 H sub 6, CH sub 4, SiH sub 4, GeH sub 4, PH sub 3, AsH sub 3, SbH sub 3, H sub 2 S, H sub 2 Se, H sub 2 Te, H sub 2, P sub 4, As sub 2, Sb sub 2, S sub 2, Se sub 2, Te sub 3, thermal dissociation, volatile hydride, equilibrium constant, isobaric isothermal potential, heat effect

ABSTRACT: The equilibrium constants for the thermal dissociation of the hydrides B_2H_6, CH_4, SiH_4, GeH_4, PH_3, AsH_3, SbH_3, H_2S, H_2Se, and H_2Te as well as of the elements H_2, P_4, As_2, Sb_2, S_2, Se_2, Te_3 were calculated for the temperature interval of 300-1300K. Equilibrium constants of homogeneous gaseous reactions

$$\partial H_n \rightleftarrows \frac{1}{m}\partial_m + nH_2$$

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ACCESSION NR: AP4034582

were calculated by the statistical method from spectral characteristics of the molecules by the equation:

$$K_{p_t} = \frac{Q'^{fm}_{\ni_m} Q_{H_2}}{Q_{\ni H_{2n}}} e^{-\Delta H^\circ_{0t}/RT},$$

where $Q_{\ni_m}$, Q_{H_2}, $Q_{\ni H_{2n}}$ are the statistical sum of elements as gas ($\ni_m$), hydrogen and hydride, T is in °K, ΔH°_0 is the energy of dissociation of the hydride to the element and hydrogen. For reactions where the element separates as a solid:

$$\ni H_{2n} \rightleftarrows \ni_{тв} + nH_2,$$

equilibrium constants were calculated from:

$$R \ln K_{p_{tt}} = \Delta\Phi^\circ - \frac{\Delta H^\circ_{0t}}{T}$$

where $\Delta\Phi^\circ = \Phi^\circ_{\ni_{тв}} + n\Phi^\circ_{H_2} - \Phi_{\ni H_{2n}}$,

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ACCESSION NR: AP4034582

where $\varphi^* = -(Z^\circ - H_0^\circ)/T$, corrected isobaric-isothermal potential of the element or compound, $\Delta H^\circ_{0\,II}$ is the heat effect at 0 K. All values are tabulated. The equilibrium constant values are graphically reviewed. All the hydrides except methane, phosphine and hydrogen sulfide are completely broken down to the element and hydrogen in the given temperature range. Orig. art. has: 7 tables, 2 figures and 8 equations.

ASSOCIATION: Gor'kovskiy gosudarstvenny*y universitet im. N. I. Lobachevskogo (Gor'kov State University)

SUBMITTED: 25Feb63 ENCL: 00

SUB CODE: IC NO REF SOV: 013 OTHER: 018

Card 3/3

SOV/124-58-10-11249

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 10, p 79 (USSR)

AUTHOR: Yushin, A.Ya.

TITLE: Experimental Investigation of the Local Heat Transfer of a Mixed Flow of Liquid in a Circular Tube (Eksperimental'noye issledovaniye mestnoy teplootdachi pri smeshannom dvizhenii zhidkosti v krugloy trube)

PERIODICAL: Sb. statey nauchn. stud. o-va Mosk. energ. in-ta, 1957, Nr 10, pp 164-177

ABSTRACT: The paper is devoted to the investigation of the local heat transfer in the initial section of the tube when there are sections of laminar, transitional, and turbulent flows in the tube. Visual investigation on Reynolds apparatus of the transition phenomena of laminar flow into turbulent flow under isothermal conditions of liquid flow in the tube were conducted prior to undertaking experiments on the heat transfer. These observations showed that the transition-point position depends substantially on the value of R_D and the conditions of entry into the tube, i.e., in a tube with a sharp-edged inlet the transition point starts much earlier than in a tube with a faired inlet.

Card 1/2

Experimental Investigation of the Local Heat Transfer (cont.)

Heat-transfer investigation was conducted according to the B.S. Petukhov method of the thick-walled tube. The value of R_D varied from 3000 to 12,000 in the course of the experiments. Under conditions of smooth entry into the tube the distribution of local value of N_D along the length of the tube shows a clearly defined minimum corresponding to the incipience of the transitional region; its average position can be defined by the value of $R_{crit} \sim 52,000$. This result coincides fully with the results of similar experiments carried out by Petukhov and Krasnoshchekov. Six experiments were conducted under conditions of a sharp-edged inlet into the tube the results of which are represented in the form of graphs. These experiments have shown that all other conditions being equal heat transfer depends substantially on the form of the inlet. Under conditions of a sharp-edged inlet the local values of N_D in the initial sector are considerably higher than under conditions of a faired inlet, although in the main section of the tube these values practically coincide.
Bibliography: 4 references.

V.V. Kirillov

Card 2/2

S/096/60/000/010/013/022
E194/E135

11.4300

AUTHORS: Petukhov, B.S., Yushin, A.Ya., Sukomel, A.S., and Strigin, B.K.

TITLE: Experimental Investigation of the Heat Exchange during the Flow of Mercury in a Round Pipe in the Laminar and Transitional Regions

PERIODICAL: Teploenergetika, 1960, No 10, p 95

TEXT: The investigation was carried out at low values of Reynolds number with a constant density of thermal flow through the walls. The experimental results are given in the form of generalised relationships covering the range of Reynolds numbers from 620 to 23,500 at P_e from 14 to 600. The experimental results are compared with those of other authors.

ASSOCIATION: Moskovskiy energeticheskiy institut (Moscow Power Institute)

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S/143/61/000/007/002/004
D053/D113

21,5240

AUTHORS: Sukomel, A.S., Candidate of Technical Sciences, Docent; Yushin, A.Ya. and Strigin, B.K., Engineers

TITLE: Investigation of the heat exchange during mercury flow in a round pipe at small Pecle numbers

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Energetika, no. 7, 1961, 79-85

TEXT: Experimental results are given of the heat-exchange investigation during mercury flow in a round pipe at small Pecle numbers (N_p). This investigation was carried out because little is known of the heat exchange during the flow of liquid metals in tubes, especially at small N_p values. The heat transfer was studied during the flow of mercury in laminar and transition regions under hydrodynamically and thermically stable conditions, and at a constant heat-flux density acting upon the pipe walls. The experimental setup (Fig. 1) consisted of (1) a round calibrated pipe made of soft carbon steel, 7.24 mm in internal diameter, 12.03 mm in external diameter, 1,504 mm long, and connected by rubber hoses with two mercury tanks;

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Investigation of the heat exchange...

(2) an electric heater coaxially mounted with the 504 mm long working portion of the pipe (1); (3) a coaxial vacuum chamber; (4) four coaxial heat shields made from aluminum foil; (5) a thermostat; (6) a mercury mixer; auxiliary heaters (7 and 8); (9) a mercury cooler; (10) an electric motor for moving up and down the mercury tanks; and (11) a stroboscopic tachometer. The heat transfer was measured by 7 thermocouples afixed to the pipe (1). The heat-transfer coefficient was determined by the formula:

$$\alpha = \frac{q_1}{\pi d \Delta t}$$

where q_1 is the density of heat flux relative to the unit length of the pipe under test; d is the internal diameter of the pipe; and Δt is the calculated thermal head at the given cross-section. The heat-transfer measurements were conducted in the range from N_P 14 to 600, which corresponds to the range of Reynolds numbers from N_{Re} 620 to 23,500 or to the Prandtl numbers: N_{Pr} 0.021 ÷ 0.026. The results obtained indicate that the heat transfer in

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Investigation of the heat exchange...

the laminar region corresponds to the theoretical relationship

$$N_{Nu} = 4.36 ; \qquad (1)$$

where N_{Nu} is the Nusselt number. The formula (1) is true for $N_{Re} \leqslant 2,300$, which corresponds to $N_P < 55$. The heat transfer in the transition region (Fig. 2) is described by the interpolated dependence

$$N_{Nu} = 4.36 + 0.0053N_P . \qquad (2)$$

Deviations of the experimental N_{Nu} values from the formula (2) do not exceed 5%. This formula (2) is true for N_{Re} values from 2,300 to 23,500, which correspond to the N_P values from 55 to 600. The experimental data obtained for $N_P \geqslant 400$, or $N_{Re} > 16,000$ coincide with the formula

N_{Nu} 5 + $0.014N_P^{0.8}$, the error being + 5% (3).

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Investigation of the heat exchange...

This formula (3) describes the heat transfer of liquid metals during a turbulent flow (Ref. 5 and Ref. 6). It was derived by the Energeticheskiy institut AN SSSR (Power Engineering Institute of the AS USSR). There are 3 figures and 6 references: 4 Soviet-bloc and 2 English references. The references to the 2 English-language publications read as follows: B. Lubarsky and S.J. Kaufman, Report NACA No. 1270, Washington, 1956; H.A. Johnson, J.P. Hartnett, and W.J. Clabaugh, Trans. ASME, vol. 76, No. 4, p. 513, 1954.

ASSOCIATION: Moskovskiy ordena Lenina energeticheskiy institut (Moscow "Order of Lenin" Power Engineering Institute).

SUBMITTED: July 13, 1960

Card 4/4

20034

S/020/61/136/006/010/024
B104/B204

21,4240
11,3950

AUTHORS: Petukhov, B. S. and Yushin, A. Ya.

TITLE: Heat exchange in the flow of a liquid metal in laminar and intermediate regions

PERIODICAL: Doklady Akademii nauk SSSR, v. 136, no. 6, 1961, 1321-1324

TEXT: By means of the experimental arrangement shown in Fig. 1, the heat exchange was studied on mercury with hydrodynamic and thermal stabilization of the flow. During filling, mercury was purified by distillation, and the two containers were filled with argon from which oxygen had been removed. The heat transfer coefficient was calculated from the relation $\alpha = q_l/\pi d\Delta t$, where q_l is the density of the heat flow (kcal/m.hr) per unit length of the test tube; d is the inner diameter of the tube; $\Delta t = t_w - t_{liq}$, where t_w is the wall temperature, and t_{liq} the liquid temperature in a certain cross section. A correction of the relation, from which t_{liq} is calculated, is discussed, which takes heat

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Heat exchange in the flow of a ...

transfer through the mercury and the tube in the longitudinal direction into account. For the purpose of further reducing the effects produced by heat transfer in the longitudinal direction, the heat transfer coefficients were determined in cross sections which were at a distance of 19 d and 43 d from the beginning of the heated section of the tube. Thus, the numbers determined here are limits, i.e., they are minimum values. Tests with turbulent water showed satisfactory results. The experiments with mercury were carried out in the following ranges: Pe from 14 to 600, Re from 620 to 23,500 (Pr = 0.021 ÷ 0.026). In Fig. 2, the Nu number is graphically represented as a function of the Pe number. As may be seen, Nu = 4.36 for the laminar region, and Nu = 4.36 + 0.0053 Pe for the intermediate region. It is further noted that the results obtained here agree with an accuracy of ±5% with the formula $Nu = 5 + 0.014\ Pe^{0.8}$ with $Pe \geq 400$ ($Re \geq 1600$) developed by the Energeticheskiy institut AN SSSR (Institute of Power Engineering of the AS USSR). It may further be seen that at the critical Reynolds number $Re_{cr} = 2300$ no considerable change of the dependence of the Nu number upon the Pe number occurs. Finally, the effect of cross grooves in the

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B104/B204

Heat exchange in the flow of a ...

tube upon the heat transfer is investigated. It is found that as a result of these cross grooves, considerable irregularities in the distribution of q_1 over the experimental length of the tube occur, and that the use of cross grooves is not convenient at small Pe numbers, because this may cause considerable errors. M. V. Vol'kenshteyn, M. A. Yel'yashevich, B. I. Stepanov, L. S. Mayants, L. A. Ignat'yev, and I. K. Bayev are mentioned. There are 3 figures and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Moskovskiy energeticheskiy institut
(Moscow Institute of Power Engineering)

PRESENTED: September 14, 1960, by P. L. Kapitsa, Academician

SUBMITTED: August 24, 1960

Card 3/5

20634
S/020/61/136/006/010/024
B104/B204

Heat exchange in the flow of a ...;

Legend to Fig. 1:
1) Experimental part of the tube. 2) Heater
3) Vacuum chamber,
4) Thermostat.
5) Mixer. 6) Cooler.
7) Reducer.
8) Stroboscopic speedometer.
A) Thermocouple.
B) To vacuum pump.

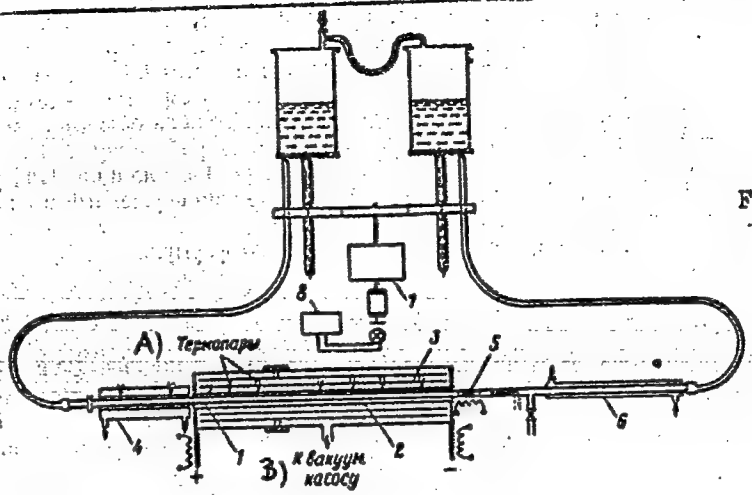

Рис. 1. Схема установки

Fig. 1

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Heat exchange in the flow of a ...

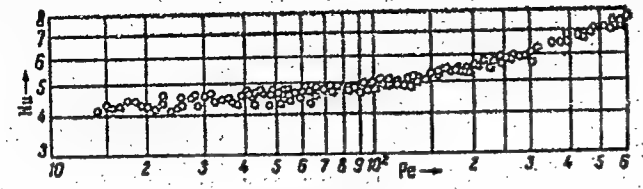

Рис. 2. Зависимость теплоотдачи от числа Pe в ламинарной и переходной областях

Fig. 2

Legend to Fig. 2: Dependence of heat transfer coefficient on Pe number in laminar and intermediate regions.

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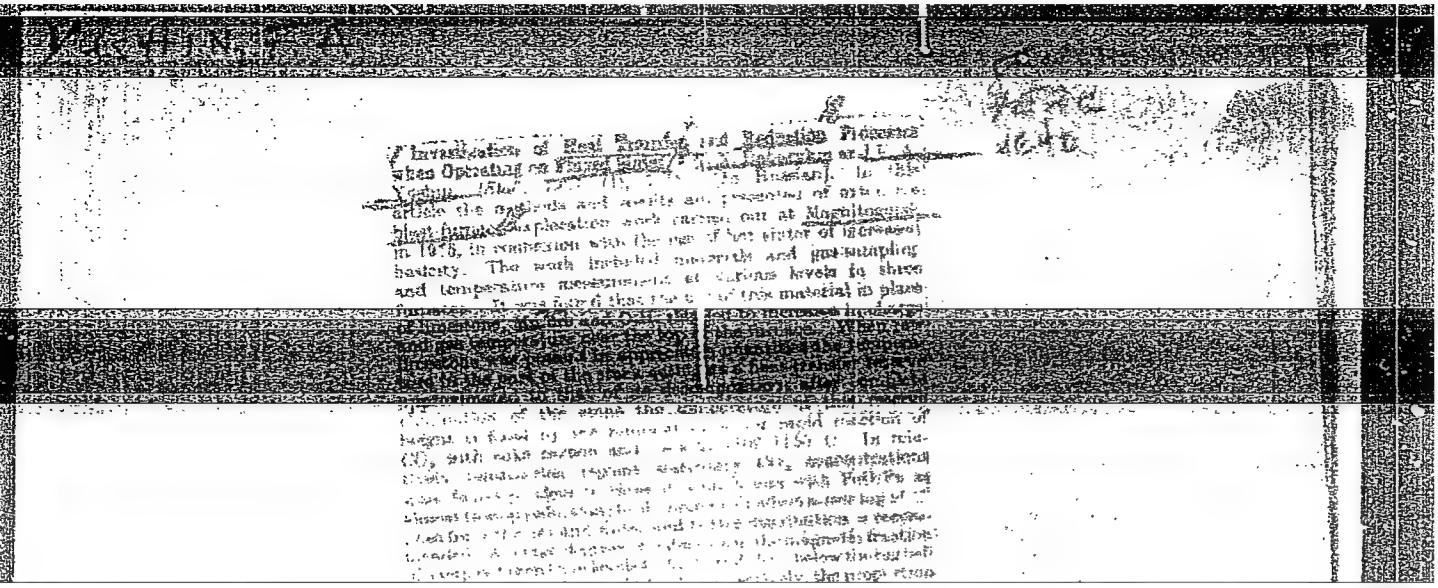

Yushin, F.A.

PA - 2371

AUTHOR: BABARYKIN, N.N. and YUSHIN, F.A., Engineers.

TITLE: Investigation of the Heat Exchange and Reduction Process when using a Fluxed Sinter. (Issledovaniye teploobmennykh i vosstanovitel'nykh protsessov pri rabote na oflyusovannom aglomerate, Russian).

PERIODICAL: Stal', 1957, Vol 17, Nr 1, pp 7 - 15 (U.S.S.R.)

Received: 5 / 1957 Reviewed: 5 / 1957

ABSTRACT: The second investigation within 4 years of the temperature and composition of gases and of the material, according to height, was carried out in 1955 in three blast furnaces. The working-conditions of the blast furnaces, investigation methods, modification of temperature, and gas-composition according to radius and height of the blast furnaces as well as the modifications of layer-composition according to radius and height of the furnace, i.e. the modification of the weight ratios, of granulation, of the composition of magnetic substances were described. Primary slags and fundamental modifications in the heat exchange process are investigated in the case of an agglomerate mixed with additional charges being used. The charging with hot agglomerate combined with additional charges, on which occasion limestone, manganese ore, and open hearth slags were led off, led to a temperature increase of the charge layer and of the gas in the upper part of the blast furnace. If a considerable amount of raw additional charges is used, the temperature of reserve-height (from the point of view of heat exchange) will [illegible] that of chemical boiling of the additional charges. After complete removal

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PA - 2371

Investigation of the Heat Exchange and Reduction Process when using a Fluxed Sinter.

of limestone it increases up to 1100 - 1150°. In those parts of the charge column, which are most charged, steady concentrations of CO_2 were found to exist. Reduction velocity is here low, the highest being found in the upper and lower part of the column. During charging the ores divide mechanically into such with a great procentage of iron and into such with a small percentage of iron, a fact which facilitates the formation of primary slag, but reduces gas permeability to some extent. On the occasion of the formation of primary slags, those slags play an essential part which are conveyed from deeper horizons by the gas current.

ASSOCIATION: Metallurgic Combinate of Megnitogorsk
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress.

Card 2/2

SOV/133-58-12-2/19

AUTHOR: Babarykin, N.N., Engineer, and Yushin, F.A.

TITLE: Changes in the Blast Furnace Process when Operating with Fluxed Sinter (Izmeneniya domennogo protsessa pri rabote na oflyusovannom aglomerate)

PERIODICAL: Stal', 1958, Nr 12, pp 1057-1065 (USSR)

ABSTRACT: An investigation of the blast furnace process during operation with fluxed sinter was carried out on three furnaces A, B and V in the Magnitogorsk Works and the results obtained compared with previous similar investigations. The working volumes of the furnaces: A - 1180 m^3, B and V - 1371 m^3. The profiles of the furnaces and the position of levels at which sampling and measurements were carried out are given in Fig 1, and main operating data in Table 1. Sampling of the burden, the determination of temperature and composition of gas on the second and third levels were carried out on furnace B, a study of the composition of materials and gases along the bosh radius on furnace A, and of the composition and temperature of gases in the upper part of the stack and in the hearth on furnace V. Sampling of materials from the stack and the bosh was carried out

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Changes in the Blast Furnace Process when Operating with Fluxed Sinter

with uncooled tubes of internal diameter 51 and 57 mm as was previously described (Ref 1). Materials from the tuyere zone were sampled with a special water cooled probe with a number of parallel cylindrical pockets (Fig 2). The temperature measurements in the stack were done with uncooled chromelalumel thermocouples. In the bosh and tuyere zone, thermocouples were cooled and on the lowest level molybdenum-tungsten thermocouples with quartz, graphite, molybdenum and berylium oxide sheaths were tested. The pressure, temperature and the composition of gas along the height of the burden column were determined as in Ref 1. Changes in the content of carbon dioxide (A) and temperature (B) along the furnace radius on I - IV levels are shown in Fig 3 (a - measurements in 1955, b - in 1956-57); the distribution of isotherms (A; °C) and lines of equal concentration of carbon dioxide (B; %) in the furnaces - Fig 4; changes in the static pressure along the height of the furnace - Table 2 and Fig 6 (a - 1956, b - 1957); the distribution of temperatures along the height of the furnace - Fig 5;

Changes in the Blast Furnace Process when Operating with Fluxed Sinter

chemical composition of burden materials on various furnace levels - Table 3; lines of equal mean degree of reduction - Fig 7 (results for 1956-57 A; for 1955 - B); mean chemical composition of metal beads collected from 3rd and 4th levels - Table 4; mean chemical composition of metal and slag from tuyere zone - Tables 5 and 6 respectively. It is concluded that: 1) the largest non-uniformity in the degree of reduction of iron oxides along the diameter was observed in the upper part of the stack. This non-uniformity decreases as the burden descends towards lower levels. Mean degree of reduction of iron oxides for successive levels I-IV amounted to: % I - 22.6; II - 32.5; III - 57.6; IV - 85.7.
An increase in the development of the reducing processes in the zone of moderate temperatures leads to a considerable improvement in the operating indices of a blast furnace. The analysis of changes in the content of sulphur on various levels supports the supposition that it circulates in the lower part of the burden column.
The temperature range within which fluxed sinter attains

Changes in the Blast Furnace Process when Operating with Fluxed Sinter

a softened state decreases with increasing degree of reduction of iron oxides. In order to secure an even and stable furnace operation the zone of softening of the burden (which forms an additional resistance to the passage of gas) should be maintained on the level of the bosh or the bottom part of the stack. The formation of droplets of a liquid phase is preceded by a steady separation of metal and slag inside lumps of sinter. With a good burden preparation the content of ferrous oxide in the primary slag is low and does not present any difficulties to an intensification of the rate of furnace driving. The presence of liquid slag in the mass of "dry" burden can be apparently explained by its being blown from lower furnace levels, as well as by considerable differences in the level of heat requirements of lumps of burden with an unequal degree of chemical preparation. The maximum gas temperature in the tuyere level (about 1990°C) was established to be at a distance of 0.4 m from the tuyere nozzle. A partial transfer of sulphur from metal and

Changes in the Blast Furnace Process when Operating with Fluxed Sinter

slag into the gaseous phase takes place in the oxidising zone. The main mass of metal and slag flows down into the hearth through a peripheral zone the width of which does not exceed 2m from the furnace wall.

There are 7 figures, 6 tables and 4 references (all Soviet).

ASSOCIATION: Magnitogorskiy metallurgicheskiy kombinat (Magnitogorsk Metallurgical Combine)

SOV/133-59-4-1/32

AUTHORS: Babarykin, N.N., Agashin, A.A., and Yushin, F.A., Engineers

TITLE: Determination of the Active Weight of Burden in an Operating Blast Furnace (Opredeleniye aktivnogo vesa shikhty v deystvuyushchey domennoy pechi)

PERIODICAL: Stal', 1959, Nr 4, pp 289-291 (USSR)

ABSTRACT: It is understood that the active weight of burden (kg/cm^2) means the difference between the vertical pressure of the burden and the gas pressure supporting the burden: $Qa = Qr - Pg$. An analytical method of determining vertical pressure of the blast furnace burden based on Jansen's formula is proposed. Experimental determinations of the active weight of the burden at various furnace levels (down to 14.5m from the stock level) in an operating furnace were carried out. The measuring method was based on introducing a probe tube into the burden to a required level and measuring with a dynamometer (fig 1) the force required to retain the tube in the stationary state. The experimental set up is shown in Fig 2. The results of the determinations of static pressure of gas

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Determination of the Active Weight of Burden in an Operating Blast Furnace

and active weight of the burden as well as calculated values for vertical pressure of the layer of burden material at various furnace levels are assembled in the table. The experimental and calculated values for the vertical pressure of the burden within the limits of the "dry" zone agreed well (fig 3). The experimental data on changes in the degree of participation of the active weight in the vertical pressure of burden characterising the degree of driving of the blast furnace (the amount of passing gases) indicate that under conditions of a high top pressure operation the upper half of the furnace could be driven harder. This reserve of driving capacity of the upper part of the furnace can be utilised by blowing into the furnace

Determination of the Active Weight of Burden in an Operating Blast Furnace

stack some reducing gases. There are 3 figures, 1 table and 1 Soviet reference.

ASSOCIATION: Magnitogorskiy Metallurgicheskiy Kombinat (Magnitogorsk Metallurgical Combine)

YUSHIN, F.A.; MAKARYCHEV, A.R.

Research at the Magnitogorsk Metallurgical Combine. Stal' 22 no.8:696 Ag '62. (MIRA 15:7)
(Magnitogorsk--Blast furnaces)

YUSHIN, F.A.; BALARYKIN, N.N.

Studying the reduction processes in a blast furnace stack.
Stal' 24 no.11:968-975 N '64. (MIRA 18:1)

YUSHIN, F.A.

Incrustations in blast furnace downtakes. Stal' 25 no.2: 112-114 F '65. (MIRA 18:3)

1. Magnitogorskiy metallurgicheskiy kombinat.

AGASHIN, A.A.; BABARYKIN, N.N.; VOLKOV, Yu.P.; GALATONOV, A.L.; KRYUKOV, N.M.; MALIKOV, K.V.; OSTROUKHOV, M.Ya.; PISHVANOV, V.L.; CHERNYATIN, A.N.; YUSHIN, F.A.

Experimental operation of blast furnaces on mazut and natural gas. Stal' 25 no.5:393-400 My '65. (MIRA 18:6)

1. Magnitogorskiy metallurgicheskiy kombinat; Vsesoyuznyy nauchno-issledovatel'skiy institut metallurgicheskoy teplotekhniki i Chelyabinskiy nauchno-issledovatel'skiy institut metallurgii.

KARIYEV, T.M., dotsent; VOLOKHVYANSKIY, A.M., kand. med. nauk;
ABDURASHITOVA, M.V., kand. med. nauk; YUSHIN, G.I., kand.
med. nauk

First Congress of Phtisiologists of Uzbekistan. Probl. tub.
41 no.5:89-92 '63. (MIRA 17:1)

YUSHIN,K.P., inzhener; AKOPYAN,G.M.

The SKH-4, new machine for harvesting underdeveloped cotton.
Sel'khozmashina no.10:5-6 0'55. (MIRA 8:12)

1. Gosudarstvennoye spetsial'noye konstruktorskoye byuro po khlopku
(Cotton-picking machinery)

YUSHIN, K.P., inzh.

The SKO-4 cotton harvester for picking bypassed cotton. Trakt.i sel'khozmash. no.8:32-33 Ag '62. (MIRA 15:8)

1. Gosudarstvennoye spetsial'noye konstruktorskoye byuro khlopkouborochnykh mashin sovnarkhoza Uzbekskoy SSR.
(Cotton-picking machinery)

107-57-2-50/56

AUTHOR: Yushin, N. (Aleksandrov)

TITLE: About the Performance of the "Rekord" TV Set. Experience Exchange (O rabote televizora "Rekord". Obmen opytom)

PERIODICAL: Radio, 1957, Nr 2, p 56 (USSR)

ABSTRACT: The town of Aleksandrov is situated 111 km northeast of Moscow. Early commercial Soviet TV sets required additional equipment for reception in Aleksandrov. However, the "Rekord" TV set, fed by a 2-channel directional antenna, can function adequately without additional equipment. The antenna used by the author is described in "Radio", Nr 4, 1956.

There is 1 Soviet reference in the article.

AVAILABLE: Library of Congress

Card 1/1

YUSHIN, O.O., kandidat tekhnichnikh nauk; LYUSHIN, M.I., kandidat tekhnichnikh nauk.

Work of C-80 and DT-54 tractors in surface tilling. Mekh. sil'. hosp. 8 no.9:24-25 '57. (MLRA 10:9)
(Tractors) (Plowing)

YUSHIN, O.O., kand.tekhn.nauk

Methods for investigating dynamic indices of wheeled tractors.
Mekh. sel'. hosp. 9 no.9:28-30 S '58. (MIRA 11:10)
(Tractors)

VASIL'YEV, A.N., inzh.; GOROKHOV, N.G., inzh.; YUSHIN, P.V., inzh.

Production of 20KhGNR steel at the Kuznetsk Metallurgical Combine.
Stal' 23 no.12:1085-1086 D '63. (MIRA 17:2)

1. Kuznetskiy metallurgicheskiy kombinat.

VOROZHISHCHEV, V.I., inzh.; YUSHIN, P.V., inzh.; MASLOVA, V.N., inzh.

Effect of aluminum on the contamination by nonmetallic inclusions, the plasticity at high temperatures, and the mechanical properties of steel. Stal' 25 no.8:852-854 S '65. (MIRA 18:9)

1. Kuznetskiy metallurgicheskiy kombinat.

ZHIL'TSOV, V.R.; ZELENOV, A.F.; KOKIN, A.G.; KOLOSOV, V.A.; KOROBITSYN, M.D.; MALYAVINSKIY, A.M.; NEFEDOV, Ya.D.; PAVLOV, A.V.; STEPANOV, Yu.A., prof.; SUVOROV, V.G.; YUSHIN, S.I.; POCHTAREV, N.F., kand. tekhn. nauk, inzh.-polkovnik, red.; KUZ'MIN, I.F., tekhn. red.

[Internal combustion engines; design and performance] Dvigateli vnutrennego sgoraniia; ustroistvo i rabota. [By] V.R. Zhil'tsov i dr. Pod red. IU.A.Stepanova. Moskva, Voen. izd-vo M-va obor. SSSR, 1955. 470 p. (MIRA 16:6)
(Internal combustion engines)

YUSHIN, V.

What a social insurance representative should read. Okhr. truda i sots. strakh. 4 no.9:42-43 S '61. (MIRA 14:10)
(Bibliography—Insurance, Social)

DRISBERG, A. Ya.; YUSHIN, V. G.

"Research in the Field of the Polymerization and Drying of Oils and Esters of Fatty Acids," Part III. "The Heat of Drying of Linseed Oil," Zhur. Obshch. Khim., 10, No. 23-24, 1940. Laboratory of the Technology of Lacquers and Paints. Leningrad Chemico-Technological Institute. Received 26 November 1939.

Report U-1612, 3 Jan 1952

L 34071-66 EWT(d)/T IJP(c)

ACC NR: AP6013014 SOURCE CODE: UR/0410/66/000/001/0096/0100

AUTHOR: Yushin, V.I. (Novosibirsk) 39

ORG: none B

TITLE: The influence of the spread of switch-on times on the determination of correlation functions of nonstationary processes [Paper presented at the 7th All-Union Conference on Automatic Control and Methods of Electrical Measurements held in Novosibirsk in September 1965]

SOURCE: Avtometriya, no. 1, 1966, 96-100

TOPIC TAGS: correlation function, correlation statistics, computer application, random process

ABSTRACTS: The evergrowing use of computers made the practical use of the results of the theory of nonstationary random functions possible. This, in turn, prompted the study of errors in the measurement of correlation functions of nonstationary processes which are of importance during the averaging over the set. The present note deals with one of the most specific errors of set correlation caused by the spread of the switch-on times and by the presence of stationary additive perturbation. The correlator is assumed to follow the algorithm

$$R_{xy}(t, \tau) = \frac{1}{N} \sum_{i=1}^{N} \left[x_i\left(t + \frac{\tau}{2}\right) - m_x\left(t + \frac{\tau}{2}\right)\right]\left[y_i\left(t - \frac{\tau}{2}\right) - m_y\left(t - \frac{\tau}{2}\right)\right], \quad (1)$$

Card 1/2 UDC: 681.142.82

L 34071-66

ACC NR: AP6013014 O

where $R_{xy}(t,\tau)$ is the correlation function; $x_i(t)$, $y_i(t)$ - the i-th pair from the realization of two nonstationary processes X(t) and Y(t); $m_x(t)$ and $m_y(t)$ - respective mathematical expectations; N - the total number of realizations involved inthe averaging process; t - the real time; and τ - time shift between the realizations. The article concludes with correction recommendations. Orig. art. has: 32 formulas.

SUB CODE: 09,12/ SUBM DATE: 25Sep65 / ORIG REF: 001

Card 2/2 lo

L 03012-67 EWT(d)/T IJP(c)

ACC NR: AP6028700 SOURCE CODE: UR/0410/66/000/003/0113/0121

AUTHOR: Yushin, V. I. (Novosibirsk)

28
B

ORG: none

TITLE: Optimum averaging intervals in the determination of statistical characteristics of a nonstationary process according to a single realization

SOURCE: Avtometriya, no. 3, 1966, 113-121

TOPIC TAGS: statistic analysis, correlation statistics, random process

16

ABSTRACT: In the determination of statistical characteristics of nonstationary random processes by averaging over the set of realizations, the large volume of computations required has led to the search for simpler procedures. The present author investigates the mean square errors of the determination of mathematical expectation and dispersion of a class of nonstationary random processes using the sliding averaging of a single trial. The results are in the form of expressions for optimum averaging intervals obtained using the minimum mean square error criteria. The knowledge of the mean correlation function of the process, of the mean correlation function of the square of the process, and of the correlation functions of the mathematical expectation and correlation are required. Rough estimates of all these functions can be made

Card 1/2 UDC: 681.142.82

L 03012-67

ACC NR: AP6028700 O

easily for normal processes with exponential correlation functions. Orig. art. has: 55 formulas and 1 table.

SUB CODE: 12/ SUBM DATE: 25Oct66/ ORIG REF: 003/ OTH REF: 001

Card 2/2 egh

DERBIKOV, I.V.; AGUL'NIK, I.M.; BEN'KO, Ye.I.; YEKHANIN, Ye.V.; GRISHIN, M.P.; YUSHIN, V.I.

Tectonics of the Mesozoic and Cenozoic mantle of the Western Siberian Lowland. Trudy SNIGGIMS no.11:63-155 '60. (MIRA 14:5)
(Siberia, Western--Geology, Structural)

YUSHIN, V.I.

Stratigraphic position of horizons with iron deposits in Upper Cretaceous and Paleogene sediments of the middle Ob' Valley. Trudy SNIGGIMS no.6:150-162 '61. (MIRA 15:7)
(Ob' Valley--Iron ores)

ACC NR: AP6021476 SOURCE CODE: UR/0413/66/000/011/0102/0102

INVENTOR: Yushin, V. I.

ORG: None

TITLE: A digital correlator with magnetic drum memory. Class 42, No. 182414 [announced by the Institute of Automation and Electrometry, Siberian Department AN SSSR (Institut avtomatiki i elektrometrii Sibirskogo otdeleniya AN SSSR)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 11, 1966, 102

TOPIC TAGS: magnetic drum, computer component, digital system, flip flop circuit

ABSTRACT: This Author's Certificate introduces a digital correlator with magnetic drum memory. The installation contains an arithmetic unit which includes an adder-multiplier. Also included in the device are input and output units and a control unit. The correlator is designed for dealing with a large class of problems: operation as a matching filter, computation of the instantaneous correlation function and of the correlation function of nonstationary processes with averaging according to a set of realizations. In the control unit, the output of the device which forms the pulse for commencing readout is connected to the pulse inputs of the first and second switches whose potential inputs are connected respectively to the one and zero states of the first flip-flop. Connected to the set terminal of the first flip-

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flop are the input of the first potential polarity-reversing amplifier and the zero state of the second flip-flop (through a differential network). The output of the polarity-reversing amplifier is connected to the reset terminals of the first and third flip-flops and to the set terminals of the fourth and fifth flip-flops. The set terminal of the third flip-flop is connected through a differential network to the output of the first univibrator. The zero state of the fifth flip-flop is connected through a differential network to the input of this univibrator. The one state of the third flip-flop is connected to the potential input of the third switch, while the pulse input of this switch is connected to the output of the first switch. The output of the third switch is connected to the input of the second univibrator whose output is connected through a differential network to the reset terminal of the first flip-flop. Connected to the reset terminal of the second flip-flop are the output of the second switch and the "initial state" bus. The set terminal of the second flip-flop is connected to the output of a revolution counter. The output of the circuit which shapes the synchro pulses for the cells is connected to the pulse outputs of the fourth and fifth switches whose potential inputs are connected respectively to the one and zero states of the sixth flip-flop. The output of the first polarity-reversing amplifier is connected to the reset terminal of the sixth flip-flop, while the output of the first switch is connected to the set terminal of this flip-flop. The output of the fourth switch is connected to the pulse input of the sixth switch, while the one state of the fourth flip-flop is connected to the potential input of the sixth switch. The output of the sixth switch is connected to

the inputs of the seventh and eighth switches and that of the third univibrator. The output of this univibrator is connected through a differential network and an amplifier to the pulse inputs of the ninth and tenth switches. The output of the first switch is connected to the counting input of the fourth flip-flop. The one state of the fourth flip-flop is connected to the potential input of the sixth switch and to the inputs of the first, second and third coincidence circuits, and also through a differential network to the counting input of the fifth flip-flop. The reset terminal of the fifth flip-flop is connected to the potential inputs of the ninth and tenth switches and to the first inputs of the first and second coincidence circuits. The set terminal of the fifth flip-flop is connected to the potential inputs of the seventh and eighth switches and to the first input of the third coincidence circuit. The second input of the first coincidence circuit is connected to the zero state of the seventh flip-flop whose reset terminal is connected through a differential network to the zero state of the fifth flip-flop. The set terminal of the seventh flip-flop is connected to the output of the collector circuit in the operational control unit. Connected through the collector circuit to the reset terminal of the eighth flip-flop are the output of the device which forms the pulse for commencing readout and the output of the tenth switch. The output of the eighth switch is connected to the set terminal of the eighth flip-flop. Connected to the reset terminal of the ninth flip-flop are the output of the device which forms the pulse for commencing readout and the output of the seventh switch. The output of the ninth switch is connected to the set terminal of the ninth flip-flop. The one

states of the eighth and ninth flip-flops are connected to the inputs of the first and second repeaters respectively. In the memory, the output of the first repeater is connected to the switch inputs of the readout amplifiers for the main shifting and nonshifting tracks. The output of the second repeater is connected to the switch input of the readout amplifier for the auxiliary track. The inputs of the readout amplifiers are connected to the readout windings of the corresponding heads. The output of each readout amplifier for the nonshifting track is connected to the set terminal of one of the four flip-flops for the nonshifting process. The outputs of the amplifiers for the shifting and auxiliary tracks are connected in pairs to four collector circuits whose outputs are connected to the set terminals of the corresponding flip-flops in the register for the shifting process. The outputs of the eighth and ninth switches are connected through the collector circuits to the bus for resetting the registers of the shifting and nonshifting processes. The one state of the fifth flip-flop is connected through a differential circuit, amplifier and relay contact which is closed in the "matched filter" state and open only during computation with cyclic shift to the circuit for resetting the register of the shifting process and to the pulse inputs of four switches whose potential inputs are connected to the data input, while their outputs are connected to the set terminals of the corresponding flip-flops in the register for the shifting process. Also incorporated in this unit is a shift cycle counter which has one input and two outputs. The input of the counter is connected through a differential network to the zero state of the fifth flip-flop. The zero state of the seventh flip-flop is connected through a dif-

ferential network and an amplifier to the pulse input of the eleventh switch, while the zero state of the tenth flip-flop is connected through the same circuit to the pulse input of the twelfth switch. The outputs of the eleventh and twelfth switches are connected through the collector circuit to the set terminal of the seventh flip-flop. The output of the eleventh switch is also connected to the reset terminal of the tenth flip-flop. The potential inputs of the eleventh and twelfth switches are connected to the one and zero states respectively of the tenth flip-flop. The output of the second potential polarity-reversing amplifier is connected to the set terminal of the tenth flip-flop and to the shift cycle counter reset. The input of this amplifier is connected to the zero state of the eleventh flip-flop. The "initial state" bus is connected to the reset terminal of the eleventh flip-flop, while a start pulse source is connected to its set terminal. The output of the second switch is connected to the pulse inputs of the thirteenth and fourteenth switches, while the output of the fifth switch is connected to the input of the fifteenth. The one state of the eleventh flip-flop is connected to the potential inputs of the thirteenth and fifteenth switches. The zero state of the twelfth flip-flop is connected to the potential input of the fourteenth switch. The reset terminal of the twelfth flip-flop is connected to the panel. The output of the fourteenth switch is connected through the collector circuit to the input of the third univibrator whose output is connected through a differential network to the set terminals of the eleventh and twelfth flip-flops. The second input of the collector circuit is connected to the output of an expectation circuit. The output of the thirteenth switch is

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connected to the reset terminal of the eleventh flip-flop, to the input of the revolution counter, and the ouput of the fifteenth switch is also connected through the collector circuit to the input of the cell counter. The output of the fifteenth switch is also connected through the collector circuit to the reset bus for the registers of the shifting and nonshifting processes. The output of the cell counter is connected through an amplifier two the pulse inputs of two groups of switches whose potential inputs are connected to the one states of the flip-flops in the registers of the shifting and nonshifting processes. The outputs of these two groups of switches are connected to the arithmetic unit. The output of the revolution counter is connected to the set terminal of the second flip-flop. The cell and revolution counters have an equal number of flip-flops.

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PETROV, P.S., dots.; BORISKIN, S.V., dots.; VASILENKO, N.A., starshiy prepod.; GERSHANOV, Ye.M., dots.; DEMENT'YEVA, A.N., starshiy prepod.; IL'IN, V.P., dots.; NIKITIN, D.P., starshiy prepod.; NIKITIN, D.P., starshiy prepod.; SHRAMCHENKO, K.G., starshiy prepod.; YUSHIN, V.I., starshiy prepod.; POPOV, A.S., red.; MESHALKIN, V.I., tekhn. red.

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